Kirt A. Page

2633 Adams Mill Rd. #103 • Washington, D.C. • 20009
202.406.0727 (M) • 301.975.5030 (W)
Email: pageka@gmail.com

PROFESSIONAL STATEMENT

I have a strong interest in experimental polymer physics, specifically in the areas of structure/property relationships and molecular dynamics in polymer systems. My research efforts have involved the use of a variety of characterization techniques in order to link morphological structures and molecular phenomena to macroscopic properties in nano-structured materials. With the growth of nanotechnology and the use of polymers in this field, I believe it is important to understand what role morphology and chain dynamics—on several length scales—plays in the resultant macroscopic and nanoscopic properties of these materials.

EMPLOYMENT

2005-Present: **National Institute of Standards and Technology**; Gaithersburg, MD
Position: *National Research Council Postdoctoral Fellow*
My current research is focused on developing a fundamental understanding of the structure and dynamics of polymer brush systems using a variety of characterization techniques.

Summer 1998 **University of Southern Indiana**; Evansville, IN
Position: *Adjunct Faculty*
Responsibilities included organizing and teaching freshman-level laboratory experiments for chemistry and biology majors.

Fall 1997 **Red Spot Paint**; Evansville, IN
Position: *Chemist*
Worked as a research chemist in quality control using gas chromatography to monitor solvent compositions in paint systems

FORMAL HIGHER EDUCATION

Graduate

1999-2005 **The University of Southern Mississippi**; Hattiesburg, MS
Ph.D. in Polymer Science and Engineering
G.P.A. 4.0/4.0
Research Advisor: Professor Robert B. Moore
Dissertation Title: "Influence of Electrostatic Interactions on Chain Dynamics and Morphological Development in Semi-crystalline Perfluorosulfonate Ionomers"

Undergraduate

1993-1998 **University of Southern Indiana**; Evansville, IN
B.S. in Chemistry (Minors: Mathematics;Physics)
G.P.A. 3.67/4.0 (*Cum Laude*)

RESEARCH AWARDS

June 2005 **NIST Center for Neutron Research Summer School**
National Institute of Standards and Technology; Gaithersburg, MD

Summer 2004 **National Science Foundation East Asia Summer Fellowship**
Osaka University; Osaka, Japan

2001-2004 **National Defense Science and Engineering Graduate Fellowship**
American Society for Engineering Education; Hattiesburg, MS

2003 **National School on Neutron & X-ray Scattering**
Argonne National Laboratories; Argonne, IL

1998-1999 **Fulbright Enterprise Fellowship**
Johannes Gutenberg University; Mainz, Germany
Max Planck Institute for Polymer Research; Mainz, Germany

HONORS

1999-2005 Gamma Beta Phi Honor Society
Phi Beta Kappa Honor Society

1993-1998 Research Experience for Undergraduates USM
Spirit of the Eagle Award
D. J. Angus Scientech Award
O. John Logsdon Chemistry Scholarship (recipient 2 yrs.)

SOCIETY MEMBERSHIPS

American Physical Society
American Chemical Society
The Neutron Scattering Society of America

RESEARCH ACTIVITIES AND SKILLS

Fuel Cell Membranes

- Structure/property relationships and chain dynamics in fuel cell membrane materials (Nafion) studied by:
  - Differential Scanning Calorimetry (DSC)
  - Dynamic Mechanical Analysis (DMA)
  - Dielectric Relaxation Spectroscopy (DRS)
  - Solid-state ^{19}F, ^{23}Na, ^{1}H and ^{13}C Nuclear Magnetic Resonance Spectroscopy
  - Quasi-elastic Neutron Scattering
  - Small-Angle X-ray Scattering (SAXS)
  - Wide-Angle X-ray Diffraction (WAXD)

Blends and Nanocomposites

- Influence of electrostatic interactions on phase behavior and crystallization in Nafion/Fluoropolymer blends studied by:
  - Real-time Simultaneous SAXS/WAXD
  - DSC
- Chain Dynamics in Polymer-Clay Nanocomposites studied by:
  - Dielectric Relaxation Spectroscopy

Synchrotron SAXS and Small-Angle Neutron Scattering (SANS)

- Synchrotron X-ray Studies:
  - Real-time Analysis of Morphology Development in Nafion/Fluoropolymer Blends
  - Morphology of Allkylammonium Neutralized Nafion
  - Dynamics of Nafion Solutions Studied by X-ray Photon Correlation Spectroscopy
  - Early Stages of Dewetting in Thin Polymer Films
  - Structural Changes in Block Copolymers Upon a Pressure Jump
- Neutron Scattering Studies:
  - Structure and Dynamics of Polymer Brushes by SANS and Neutron Spin Echo
  - Variable Temperature SANS of Stimuli-Responsive Block Copolymers

LANGUAGES

Fluent in German.

INVITED TALKS AND PRESENTATIONS

1. "Influence of Electrostatic Interactions on Chain Dynamics and Morphological Development in Semi-crystalline Perfluorosulfonate Ionomers". Talk June 2005; 6th National Graduate Research Polymer Conference; American Chemical Society, Polymer Division. University of Massachusetts at Amherst; Amherst, MA.

2. "Influence of Electrostatic Interactions on Chain Dynamics and Developing Morphology in Nafion Membranes as Studied by SAXS and ^{19}F NMR Spectroscopy". Talk August 2004; Kyoto Institute of Technology; Kyoto, Japan.

3. "Molecular Origins of the Dynamic Mechanical Relaxations in Perfluorosulfonate Ionomers". Poster May 2005; Gordon Research Conference on Ion Containing Polymers; Barga, Italy.

4. "Investigations of the Thermal Transitions of Nafion using Variable Temperature Real-Time SAXS and ^{19}F NMR Spectroscopy". Poster June 2003; Gordon Research Conference on Ion Containing Polymers; South Hadley, MA.

5. "Influence of Ionic Aggregation on the Surface Energies of Crystallites in Poly(butylene terephthalate) Ionomers". Poster June 2001; Gordon Research on Ion Containing Polymers; Williamstown, MA.

REFEREED PUBLICATIONS AND MANUSCRIPTS IN PREPARATION

1. Page, Kirt A.; Landis, Forrest; Phillips, Alan K.; Moore Robert B. "SAXS Analysis of the Thermal Relaxation of Anisotropic Morphologies in Oriented Perfluorosulfonate Ionomer Membranes", *Macromolecules, in Press*.

2. Page, Kirt A.; Cable, Kevin; Moore, Robert B. "Molecular Origins of Thermal Transitions and Mechanical Relaxations in Perfluorosulfonate Ionomers", *Macromolecules* **2005**, *38(15)*, 6472-6484.

3. Page, Kirt A.; Schilling, G.D.; Moore, R.B. "Influence of Ionic Aggregation on the Surface Energies of Crystallites in Poly(butylene terephthalate) Ionomers", *Polymer* **2004**, *45(25)*, 8425-8434.

4. Page, Kirt A.; Jarrett, William; Moore, Robert B. "Influence of Electrostatic Interactions on the Molecular Motions of Nafion as Studied by Variable Temperature Solid-state ^{19}F NMR Spectroscopy", *submitted to Journal of Polymer Science Part B: Polymer Physics*.

5. Page, Kirt A.; Adachi, Keiichiro "Dielectric Relaxation in Montmorillonite/Polymer Nanocomposites", *submitted to Polymer*.

6. Chen, Q.; Page, Kirt A.; Moore, R. B.; Schmidt-Rohr, K. "Multinuclear Solid-State NMR Investigations of Organic Counterions in a Perfluorinated Ionomer", *manuscript in preparation*.

PREPRINTS

1. Gemeinhardt, Gregory C.; Phillips, Alan K.; Page, Kirt A.; Moore, Robert B. "Characterization of blend heterogeneity using synchrotron small-angle X-ray scattering" Polymer Preprints. **2004**, *45(2)*, 585-586.

2. Page, K. A.; Moore, R.B. "Correlations Between Bulk Mechanical Relaxations and Spin Diffusion Times in Perfluorosulfonate Ionomers: Molecular Origins of Mechanical Realxations," *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)*, **2003**, *44(1)*, 1144-1145.

3. Creed, David; Somlai, Alline M.; Hoyle, Charles; Page, Kirt A. "Synthesis and photochemistry of stilbene dicarboxylate polyesters that are liquid crystalline at room temperature" *Polymer Preprints.* **2003**, *44(1)*, 84-85.

4. Landis, F.A.; Moore, R.B.; Page, K.A.; Han, C.C. "SAXS Analysis of the Thermal Relaxation Behavior of Oriented Perfluorosulfonate Ionomer Membranes," *Polym. Mat. Sci. Eng. (Am. Chem. Soc., Div. Polym. Mat. Sci. Eng.)*, **2002**, *87*, 121-122.

5. Young, S. K.; Page, K. A.; Mauritz, K. A. "Novel Nafion/ORMOSIL and Telechelic Polymer/ORMOSIL Hybrids via In-situ Sol Gel Chemistry." *Polym. Mater. Sci. Eng.* **1997**, *76*, 391-392.

REFERENCES

Furnished upon request.